

**(57) Abstract:** The present invention is directed toward methods of selectively functionalizing carbon nanotubes of a specific type or range of types, based on their electronic properties, using diazonium chemistry. The present invention is also directed toward methods of separating carbon nanotubes into populations of specific types or range(s) of types via selective functionalization and electrophoresis, and also to the novel compositions generated by such separations.



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